

WHAT IS CLAIMED IS:

1. A miniature reaction chamber template structure for fabrication of nanoscale molecular systems and devices, comprising:
 - a first wafer of silicon,
 - 5 a layer of Pyrex glass deposited on said wafer of silicon to form a composite structure,
 - a plurality of channels located between said glass and silicon interface and providing an inlet opening for said channels at one end of said structure and an outlet opening for said channels at another end of said structure to enable the insertion of a fluid containing organic molecules in said channels.
2. The miniature reaction chamber according to claim 1 wherein said channels are located longitudinal to said structure and directed from a first side to a second side in the X direction.
3. The miniature reaction chamber according to claim 2 where in there are additional channels located in the Y direction and which are transverse to the X direction channels.
- 20 4. The miniature reaction chamber according to claim 1 further including a second wafer of silicon bonded to said Pyrex layer to form a laminar

structure having a top layer of silicon, a middle layer of Pyrex and a bottom layer of silicon.

5. The miniature reaction chamber according to claim 1 wherein said channels are circular in cross section.
6. The miniature reaction chamber according to claim 1 wherein said channels are rectangular in cross section.
7. The miniature reaction chamber according to claim 1 wherein said Pyrex is deposited in said silicon.
8. The miniature reaction chamber according to claim 1 wherein said Pyrex is joined to said silicon by a field assisted bond.
9. The miniature reaction chamber according to claim 8 wherein said field assisted bond creates oxygen ions in the Pyrex.
10. The miniature reaction chamber according to claim 4 further including vertical conduits located in said top layer of silicon and in communication with said channels to enable a fluid to be introduced into said channels.

11. The miniature reaction chamber according to claim 10 further including localized reaction areas positioned in said channels and capable of producing a high electric field wherein a voltage is applied to said structure.
12. The miniature reaction chamber according to claim 1 wherein said channels include a metallized layer area.
13. The miniature reaction chamber according to claim 1 wherein said channels are between 1 to 10 mils in diameter.
14. The miniature reaction chamber according to claim 1 wherein said silicon is doped silicon.
15. The miniature reaction chamber according to claim 1 wherein said silicon is intrinsic silicon.
16. The miniature reaction chamber according to claim 1 wherein said silicon wafer is coated with silicon dioxide.
17. The miniature reaction chamber according to claim 12 wherein said metal selected from aluminum or gold.